PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 17 MAR 2006
WIPO PCT

Applicant's or agent's file reference P35146A/LSA/CHU/GMU	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB2004/004157	International filing date *(day/month/year)* 30.09.2004	Priority date *(day/month/year)* 03.10.2003
International Patent Classification (IPC) or both national classification and IPC INV. B06B1/16		
Applicant O'CONNOR, Joe		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand 19.07.2005	Date of completion of this report 17.03.2006
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Lorne, B Telephone No. +31 70 340-1002

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-17 as originally filed

Claims, Numbers

1-10 received on 19.07.2005 with letter of 15.07.2005

Drawings, Sheets

1/10-10/10 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:
D1: FR 46 128 E (LACHAISE JEAN CELESTIN HIPPOLYTE) 5 March 1936 (1936-03-05)

D2: WO 99/34935 A (LEHTONEN HARRI) 15 July 1999 (1999-07-15)
The document D2 was not cited in the international search report. A copy of the document is appended hereto.

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document):
a variable vibrator mechanism (see fig.1) comprising a first member [1] and a second member [13] arranged telescopically with one other (page 2, column 2 lines 55-59) wherein said first member has a first eccentric weight [8] and said second member has a second eccentric weight [9], wherein said first and second member are adapted to be engaged with one another (fig.1), such that the rotational displacement between said first eccentric weight and said second eccentric weight may be varied by varying the longitudinal displacement between said first and second members (page 2, column 2 lines 52-68).

The subject-matter of claim 1 differs from this known document in that an additional first member is arranged telescopically with the second member.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as a desire to design a device in which the centre of gravity remains fixed as the eccentricity of the mechanism is varied.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons.
Document D2 discloses a vibrator mechanism comprising two first members with eccentric weights and a second member also with an eccentric weight. However it does not disclose

a longitudinal displacement that can be varied between the first and second members and fails to discuss the problem of maintaining a constant centre of gravity.
The skilled man would not consider amending the variable the device disclosed in D1 to include an additional first member since it would involve making considerable constructional changes to the vibrator mechanism. In addition, even if another first member was added to the apparatus of D1 the resulting mechanism would not solve the problem of maintaining, in a practical way, a constant centre of gravity as the eccentricity of the mechanism is varied.

Therefore, claim 1 is considered as involving an inventive step (Article 33(3) PCT).
Furthermore, dependent claims 2-10 are also new and inventive over prior art documents D1 and D2.

Claims

1. A variable vibrator mechanism comprising:

two first members arranged telescopically with a second member,

wherein said first members each have a first eccentric weight and said second member has a second eccentric weight,

wherein said first members and said second member are adapted to be engaged with one another, such that the rotational displacement between said first eccentric weights and said second eccentric weight may be varied by varying the longitudinal displacement between said first members and said second member.

2. A variable vibrator mechanism as claimed in claim 1, wherein one of said first members and second member are adapted to receive the other of said first members and second member.

3. A variable vibrator mechanism as claimed in any preceding claim, wherein said first members and second member are threadably engaged with one another.

4. A variable vibrator mechanism as claimed in claim 3, wherein said second member has two oppositely cut threaded portions to engage said first members.

5. A variable vibrator mechanism as claimed in any preceding claim, wherein said first members and second member are cylindrical.

6. A variable vibrator mechanism as claimed in any preceding claim, wherein further comprising means for telescopically displacing said first and second members.

7. A variable vibrator mechanism as claimed in claim 6, wherein the means for telescopically displacing said first and second members is a hydraulic ram.

8. A variable vibrator mechanism as claimed in any preceding claim, wherein said vibrator mechanism comprises a plurality of pairs of first and second members, wherein each pair of first and second members are arranged telescopically with one another.

9. A vibrating screen machine including a variable vibrator mechanism according to any of claims 1 to 8.

10. A vibrating feeder machine including a variable vibrator mechanism according to any of claims 1 to 8.